

# Innovations and security in Retail Payments



**Ayse Zoodsma-Sungur (DNB) and Rui Pimentel (BdP)**

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# Agenda

- Foreword
- Electronic Payments and Innovations
  - At the counter
  - Remote
  - Person to person
- Recent publications & initiatives
- Cybercrime and Security



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# FOREWORD

Over the past decade, a number of innovative developments in retail payments have emerged.

Many central banks take an interest in retail payments as part of their role in maintaining the stability and efficiency of the financial system and preserving confidence in their currencies.

Although most retail payment systems are not considered systemically important, their potential weaknesses with regard to security and reliability could nonetheless affect the financial system and the economy. Innovations in retail payments can therefore raise policy issues for central banks.



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# Role of Central Banks (DNB, BdP)

## Role of DNB, BdP

- Catalyst and facilitator of national discussions, involvement of stakeholders
- Active contribution in European discussions, both at ESCB level and others
- Research on payment patterns & habits of use and underlying motives



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# Fact Finding worldwide

Most innovations are domestic, but similar products have emerged worldwide

- Internet payments: Payments initiated by devices connected to the internet
- Mobile payments: Payments initiated + transmitted by devices connected to the mobile communication network / NFC
- Innovative card payments: Cards as access device for payments



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# Fact Finding worldwide 1

- EBPP: Electronic bill presentment + payment
- Improvements in infrastructure/ security  
Innovations improving the efficiency of payments processing or improving security

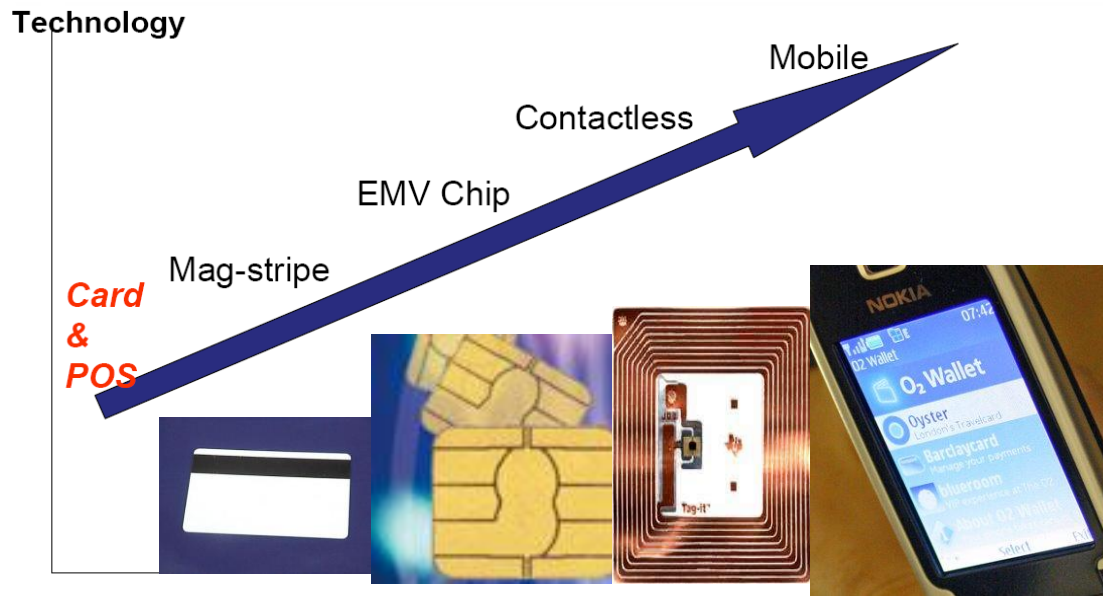


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# At the counter

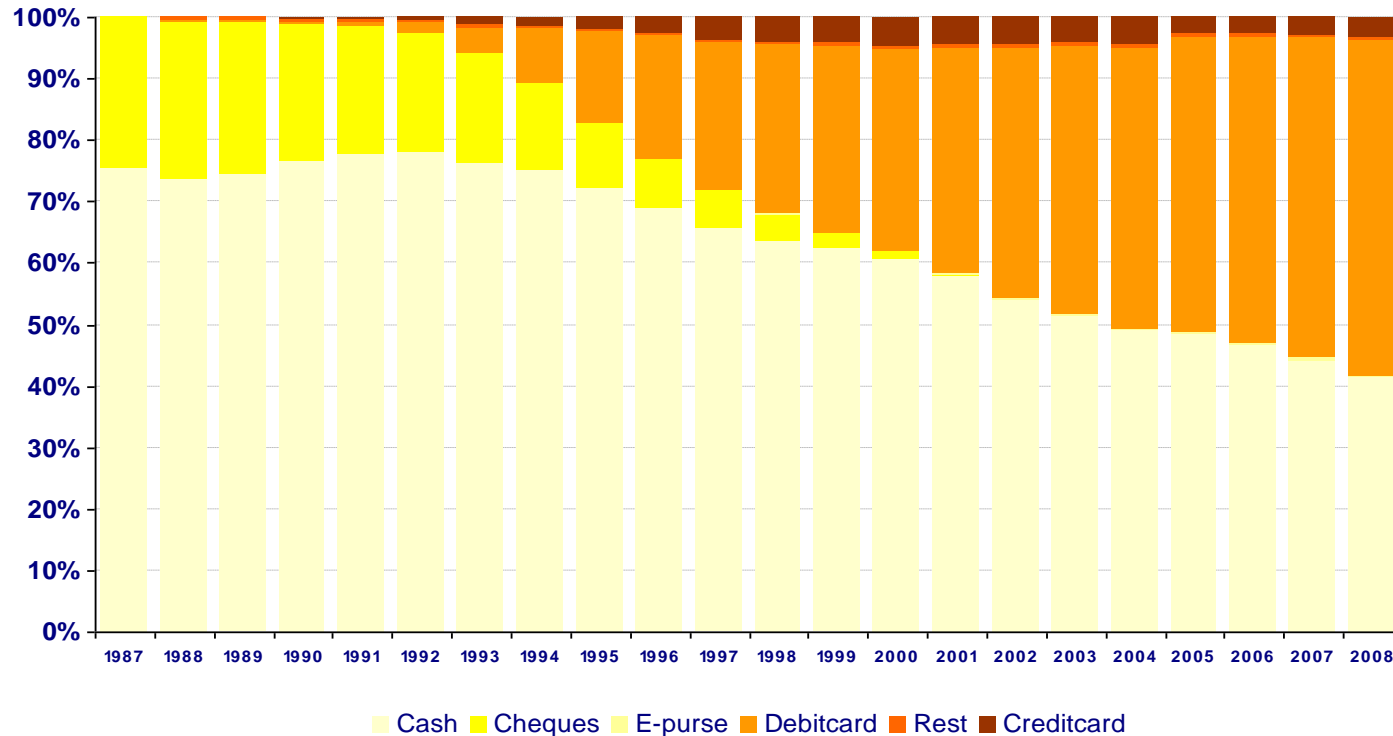
- Cash
- Magstripe
- EMV chip
- Contactless / mobile proximity



# Development POS payments - NL

## Share of POS payment instruments

As percentage of total sales



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# Remote

- Credit transfer and direct debit
- Internetbanking
  - Online payment  
“iDEAL”
  - Digital billing  
“Standaard digitale nota”
- Mobile phone
  - Mobile internetbanking
  - p2p payments

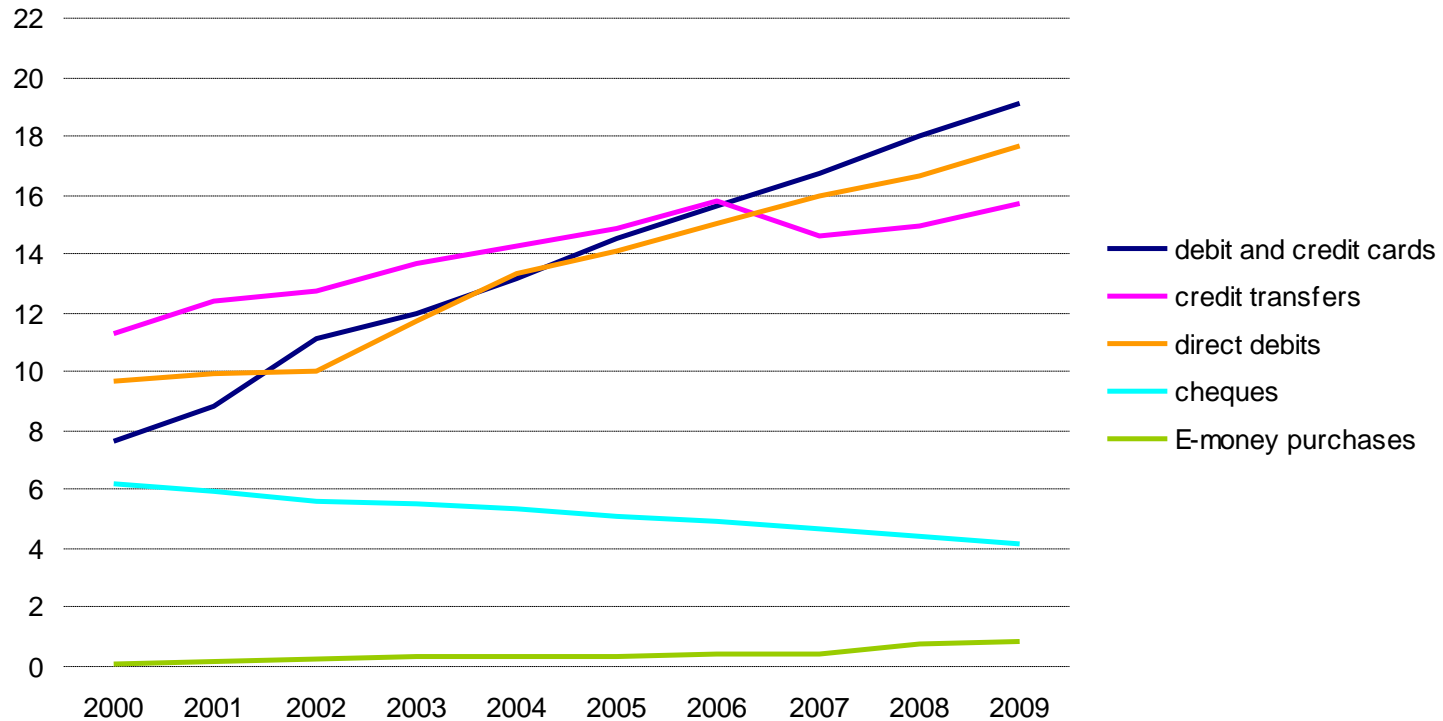
| The Netherlands           |           |           |
|---------------------------|-----------|-----------|
| Total transactions        | 2009      | 2010      |
| Credit transfer           | 1,481 mln | 1,546 mln |
| Direct debit transactions | 1.272 mln | 1,310 mln |
| iDEAL transactions        | 44 mln    | 63 mln    |

Source: DNB Annual report 2010



# Trends in Retail Payments in the EU

Payment transactions in the euro area (billions)



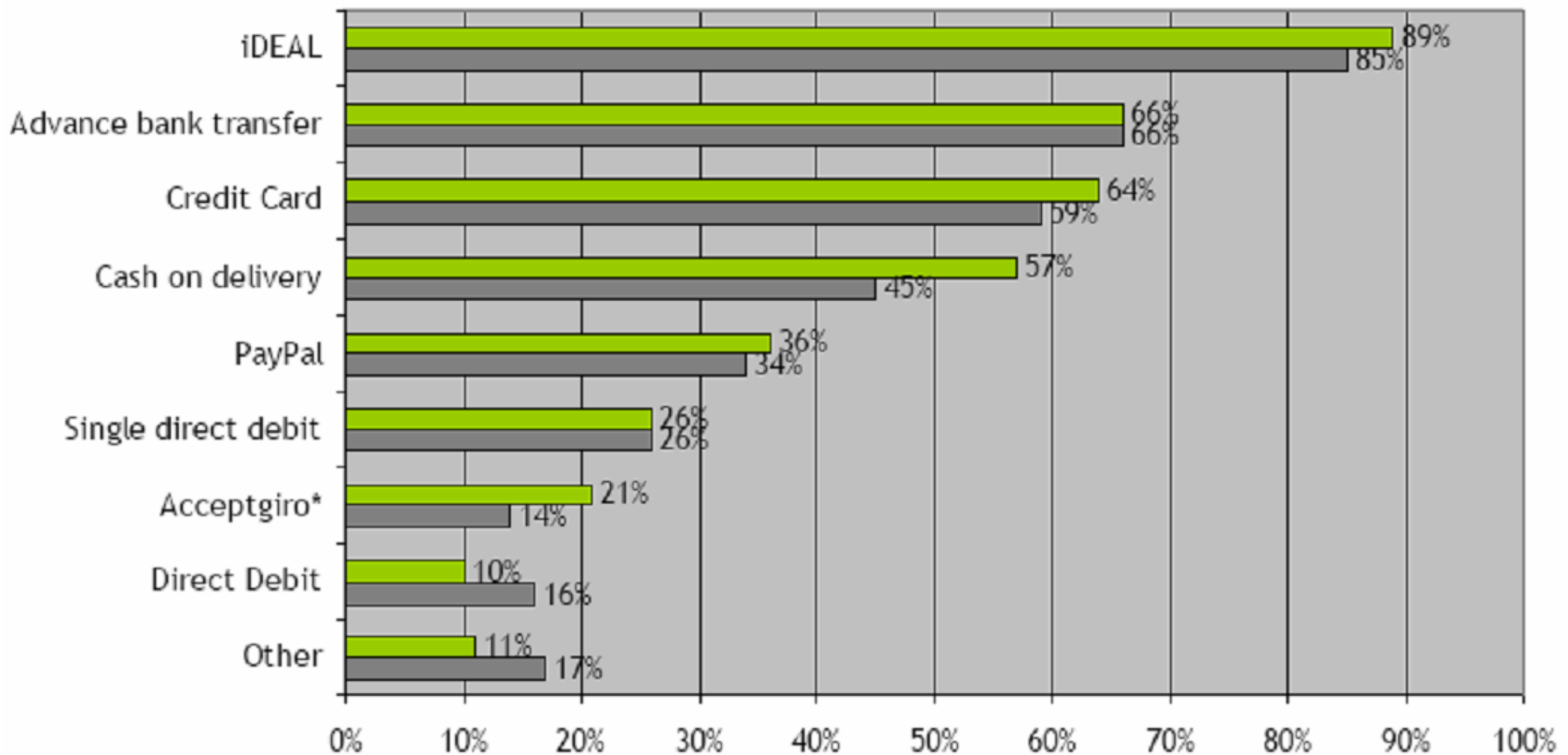
Source: ECB



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# Payment methods web merchants NL (2008-2009)



Source: Online Payments 2010, Innopay



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# iDEAL: Dutch standard for online banking based electronic payments

- Launched in October 2005
- Ten major banks in the Netherlands (market share > 98%)
- Existing internet banking interfaces used for authentication and authorization
- Additional banks



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# iDEAL: advantages

## ➤ Customer:

- Easy to use (pre-filled transaction form; familiarity with electronic banking and security)
- Safe and trusted payments

## ➤ Merchant:

- Guaranteed payment (no charge-backs)
- Low cost
- Large potential customer base

## ➤ Bank:

- Further usage of electronic banking systems
- Further reduction of “paper based payments”



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# Electronic Bill Presentment and Payment

➤ New way of receiving and paying bills

Step 1: Customer receives a link to new bill  
by e-mail or in internet banking environment

Step 2: After review, customer can click  
“I want to pay” button

Step 3: Customer is directed to internet  
banking application of “his” bank

➤ Estimation: potentially € 50 - € 100 billion yearly  
efficiency gains in European Union



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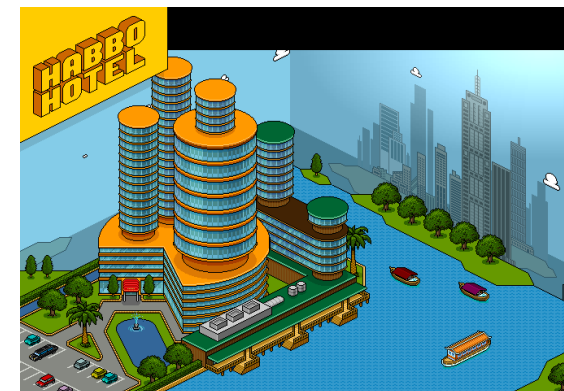
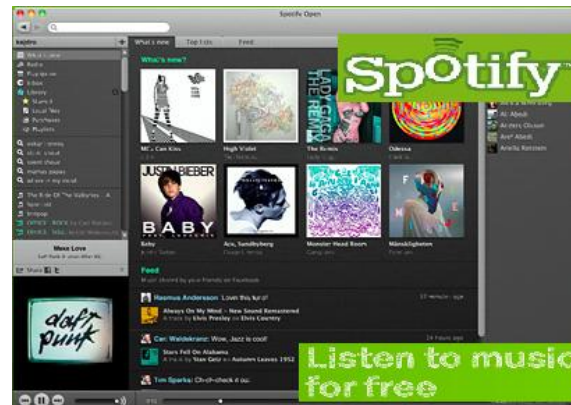


# Payment trends – next 5 years

New developments:

- Social networks
- Mobile internet
- Cloud computing
- Role of non-banks is significantly increasing

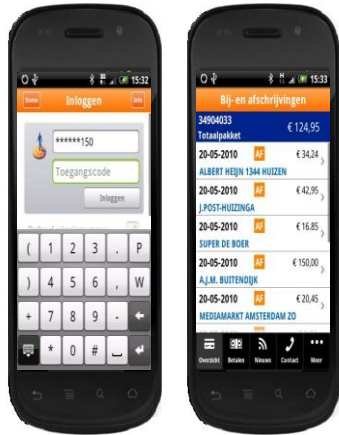
Possible trigger: use of innovative technology and internet





# Mobile payments

## M-banking



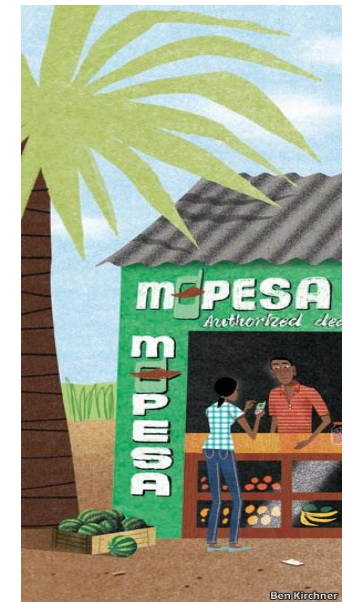
## P2P payment



## NFC at the POS



## Solutions for the unbanked



Cover both proximity and remote transactions  
Examples from several countries



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De Nederlandsche Bank  
Eurosystem



# NL: Sixpack

## Banks:

- Rabobank
- ING
- ABN Amro

## Mobile providers:

- Vodafone
- KPN
- T-Mobile



## NFC Consortium “Travik”



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De Nederlandsche Bank  
Eurosystem

# Recent publications & initiatives

The European Commission published in January 2012 the Green Paper “Towards an integrated European Market for card, internet and mobile payments”

- Public consultation was conducted until April
- A public hearing session was organised on 4 May

[http://ec.europa.eu/internal\\_market/payments/cim/index\\_en.htm](http://ec.europa.eu/internal_market/payments/cim/index_en.htm)

- Preliminary perspective to be communicated to the market before the summer

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011DC0941:EN:NOT>



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# Recent publications & initiatives

The Committee on Payment and Settlement Systems (CPSS) of the Bank for International Settlements (BIS) published its report on innovations in retail payments on 29 May 2012

- Involvement of Central Banks
- Recognised relevance of retail payments for the functioning of the financial system and the economy as a whole
- Several open issues are identified

<http://www.bis.org/publ/cpss102.htm>



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# Growth debit card skimming fraud

- Total card fraud:
  - Mail-non-receipt fraud
  - Lost-and-stolen card fraud
  - Card-not-present fraud
  - Skimming fraud
- Debit card skimming fraud NL
  - EUR 4 mln (2005) → EUR 36 mln (2009)
  - 0.03% debit card sales
  - 0.3% debit cards
  - 4% ATM & POS terminals



# Debit card skimming fraud

- Indirect costs for accountholders:
  - Precautionary blocking
  - Adm. & payment inconveniences
  - Closedowns ATM & POS terminals
- Indirect costs for banks & retailers:
  - Anti-skimming devices
  - Fraud detection systems
  - Public awareness campaigns



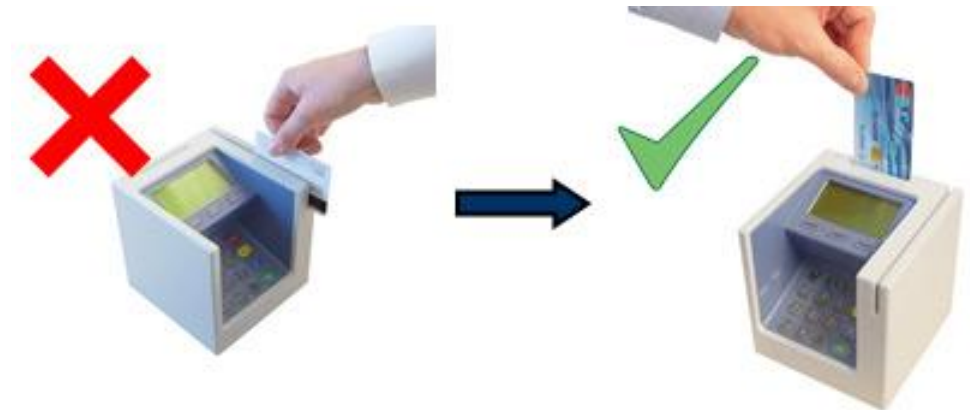
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# Expectation

Less skimming fraud due to migration from magstripe to EMV card payments – but there are still threats

|           |      |
|-----------|------|
| Cards     | 100% |
| Terminals | 80%  |



As of 1 January 2012 : full EMV roll-out in the Netherlands

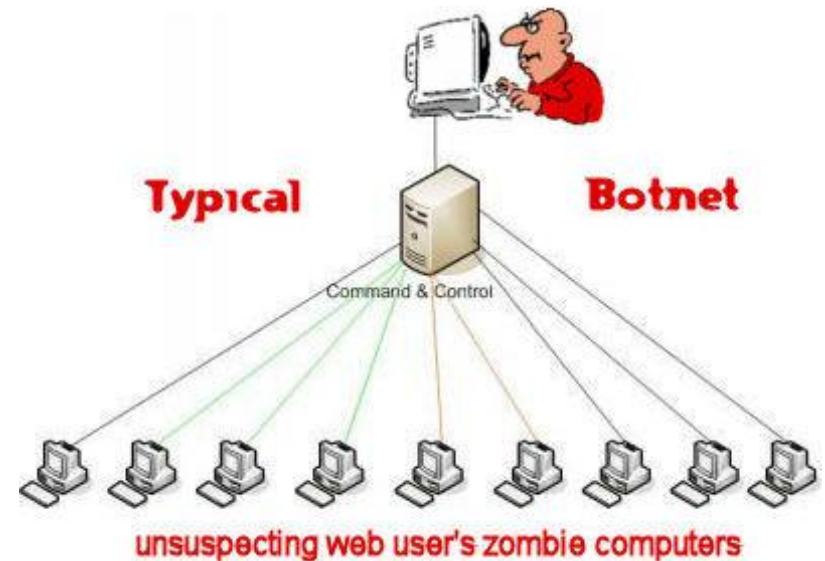
# Threats

- Cybercrime
- Malware is growing exponentially
- Botnets

= Networks of hacked PCs

- Spam
- Phishing
- DDoS attacks
- Identity fraud

- > 50 % PCs contain malware
- > 10 - 25% are part of botnet



# Two major trends

## Cybercrime:

- is becoming large-scale
- complexity increases
  - use of advanced techniques
  - organized attacks
  - fraudsters act cross-border



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# Authorities

- **Team High Tech Crime (banks, Ministry of Justice and national police)**
- **National Cyber Security Center**
- **Financial Expertise Centre (multiple public organisations)**
- **Europol**
- **ESCB via the SecuRe Pay Forum**



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# Questions?



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